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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/186,817 | 11/05/1998 | MARK RAPAICH | 450.183US1 | 2299 |

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EXAMINER

LAO, LUN S

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/186,817

Applicant(s)

RAPAICH, MARK

Examiner

Lun-See Lao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action is response to the amendment filed on 12/08/2003. Claims 1-13 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-6, 8-9 and 11,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) in view of Thagard et al.(US PAT. 6,215,737).

Regarding claim 1, Cooper teaches that a system comprising:

a plurality of audio digital-to-analog converters (see fig.4, (10-1-10-n)),

A controller (see fig.4, 17) configured to receive digital audio signals from multiple sources and route (see fig.4, 16) the digital audio signals to a selected digital-to-analog converter (10-1,10-n) based on desired converter quality (route to a converter matching the appropriate/particular signal, col.4 line 55-col.5 line 55), but Cooper does

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not clearly teach the audio signals relate to difference quality digital to analog converters.

However, Thagard teaches the audio signals (such as 12khz (subw) 48 khz(r.l, rr) and 96khz(fc, fr) relate to difference quality digital to analog converter (such as subw d/a, rl d/a, rr d/a, fl d/a, fc d/a and fr d/a see figs 3-4 by difference frequency and col.3 line 34-col.4 line 34 and selected digital to analog converter base on desired converter quality).

Therefore, it would have been obvious to treat the signals as higher quality (such as 48khz for rl, rr d/a converter) than low quality audio signals (such as 12khz for subw d/a converter). The same is true for corresponding difference quality digital to analog converters.

Regarding claims 2, 13, Cooper teaches a system comprising:

one or more standard digital audio sources (see fig.4, (13-1-13-n));

means for routing (16) digital audio signals from standard digital audio sources to a standard quality digital-to-analog converter (see fig.4, (10-1-10-n); and

means for routing (16) digital audio signals from a high-quality digital audio source to a high quality digital-to-analog converter (see fig.4, (10-1-10-n) and col.4 line 50 - col.5 line 55) (different types of input signals, col. 1, lines 9-13). Note discussion of claim 1 for quality of converters.

Regarding claim 3, Cooper discloses that the system includes any of the high quality or standard quality digital-to-analog converters are coder-decoders (CODECs)

that contain both digital-to-analog converters (see fig.4, (10-1-10-n)) and analog-to-digital converters (see fig.4, (13-1-13-n) and col.4 line 50- col.5 line 50).

Regarding claims 5-6, Cooper teaches that a user configures the controller by hardware or software controls, such that the controller routes a selected analog signal to a selected one of a plurality of analog outputs (see fig.4 and col.4 line 5- col.5 line 15), and that the selected analog signal is provided by one of a group consisting of the digital-to-analog converters, Compact Disc players, DVD players, microphones, TV tuners, or analog inputs (see col.3 lines 20-42).

Regarding claim 8, Cooper teaches that the digital audio signal (see fig.4, (10-1-10-n)) is transferred from the digital audio source (13-1-13-n) to the controller (17) by a direct electrical or optical connection between the two.

Regarding claim 9, Cooper teaches that a method of routing digital audio to a plurality of digital-to-analog converters in a personal computer comprising the steps of:

receiving digital audio data from one of a plurality of digital audio sources (after a/d, (13-1-13-n)); and

routing (see fig.4, 16) the digital audio data to one of a plurality (see fig4. 10-1-10-n)) of converters based on desired converter quality (route to a converter matching the appropriate/particular signal, col.4 line 55-col.5 line 55). Note discussion of claim 1 for based on desired converter quality.

Regarding claim 11, Cooper teaches that a method of routing digital audio to a plurality of audio digital-to-analog converters in a personal computer comprising the steps of:

receiving digital audio from one of a plurality of digital audio sources (see fig.4 (after a/d, 13-1-13-n));

assigning digital audio data from a source a priority (higher priority input, col.4 line 50-col.5 line 55); and

routing (16) the digital audio data to one of a plurality of converters (10-1-10-n) in an order determined by the assigned data priority (see fig.4 col.4 line 50-col.5 line 55). It is noted that assigning a higher priority to one input effectively assigns relatively lower priorities to other inputs. Alternatively, it would have been obvious to explicitly assign one priority level to each input.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heyl(US PAT 5,774,567) in view of Thagard (US PAT 6,215,737).

Regarding claim12, Heyl teaches that a personal computer system comprising: memory (see fig.5, 202 buffer); a processor (such as a control circuitry); a bus (see fig.5 and col.6 line 8-col.7 line 19), a plurality of digital audio converters (see fig.5 214,215, 252, 254); a controller (such as control circuitry) configured to receive digital audio signals from multiple sources (see fig.5 and col.6 line 8-col.7 line 17), but Hey does not clearly teach to route the digital audio signals to a selected digital-to-analog converter based on desired converter quality.

However, Thagard teaches the audio signals (such as 12khz (subw) 48 khz(r.l, rr) and 96khz(fc, fr) relate to difference quality digital to analog converter (such as subw d/a, rl d/a, rr d/a, fl d/a, fc d/a and fr d/a see figs 3-4 by difference frequency and col.3

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line 34-col.4 line 34 and selected digital to analog converter base on desired converter quality).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Heyl into Thagard to provide a multi-channel digital audio having different sampling rate for different d/a converter in order to avoid more data than is necessary and consequently to conserve space on the software carrier.

5. Claims 4,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) as modified by Thagard (US PAT. 6,215,737) as applied to claims 1, 9 above and further in view of Van Ryzin (US PAT 6,052,471).

Regarding claims 4, 10, Cooper teaches that assigning digital audio data from each source a priority (higher priority input); assigning digital audio data from each source to one of the plurality of converters (see col.4 line 50-col.5 line 55). Cooper fails to teach that determining which digital audio data has the highest priority among all data assigned to each converter; and converting the digital audio data in each converter with the highest priority to analog audio.

However, Van Ryzin teaches that determining which digital audio data has the highest priority among all data assigned to each converter; and converting the digital audio data in each converter with the highest priority to analog audio (see col.3 line 60-col.4 line 65).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Van Ryzin into the teaching of Cooper and Thagard to achieve a system receiving inputs signals from multiple sources to be able to readily switch to an appropriate source of the multiple sources while requiring a minimum amount of user intervention.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (US PAT 5,592,508) as modified by Thagard (US PAT. 6,215,737) as applied to claims 1, 9 above and further in view of Heyl (US PAT 5,774,567).

Consider claim 7, Cooper and Thagard does not teach a standard personal computer bus for transferring the digital audio signal from the digital audio source to the controller.

However, Heyl teaches a standard personal computer bus for transferring the digital audio signal from the digital audio source to the controller (see fig.5 and col.1 lines 17-35, col.6 lines 8-62).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Heyl into the teaching of Cooper and Thagard to provide to handle complex control and routing of numerous sound inputs in a cost effective manner.

Response to Arguments

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7. Applicant's arguments filed 11-28-2003 have been considered but are moot in view of the new grounds of rejection.

Conclusion

8. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(703) 872-9306

Hand-delivered responses should be brought to:


Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (571) 272-7499.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501


DUC NGUYEN
PRIMARY EXAMINER

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